

EXHIBIT 12

FCI Block #2 – Video: $N=200$, $R=10$, $D=50$

FCI Block #3 – Video: $N=0$, $R=0$, $D=1$ (no coding or interleaving)

This would also result in a total interleaver memory of 20 kbytes.

It is apparent that it is necessary for the receiver to have knowledge of the total shared memory prior to configuring the FCI blocks to meet application requirements. It is therefore an essential aspect of this invention that prior to configuring the FCI blocks the transmitting modem must send a message to the receiving modem containing information describing the total/shared memory of the transmit FCI blocks.

Alternatively, the transmitting modem can determine the specific FCI configuration parameters (e.g. N , D , R as defined above) needed to meet specific application requirements, such as latency, burst error correction capability etc. As described above for the receiving modem, in order to determine the FCI configuration parameters, the transmitting modem must first know what are the capabilities of the receiving modem. In this case, the receiving modem would send a message to the transmitting modem containing the information described above and based on this information and the application requirements the transmitting modem would select FCI block settings. Likewise, in this case, it is an essential aspect of this invention that prior to configuring the FCI blocks the receiving modem must send a message to the transmitting modem containing information describing the total/shared memory of the receive FCI blocks.

Alternatively and in addition, interleaver memory and coding module can be shared between the transmitting and receiving portions of a single modem. For example, a memory block of 20 kBytes can be shared among the transmitting and receiving FCI blocks of a modem. As an example, a modem could support 1 video application in the transmitting direction using 10 Kbytes of interleaving memory in 1 transmit FCI block and 1 video application in receiving direction using 10 Kbytes of deinterleaving memory in 1 receive FCI block. Alternatively, for example, the same modem could support 2 video application in transmitting direction using 20 Kbytes of interleaving memory in 1 transmit FCI block and 1 voice application in the receiving direction using 0 Kbytes of deinterleaving memory in 1 receive FCI block. Alternatively, for example, the same modem could support 1 video application in transmitting direction using 8 Kbytes of interleaving memory and 1 internet access application in transmitting direction using 4 Kbytes of interleaving memory in 2 transmit FCI blocks and 1 video application in receiving direction using 8 Kbytes of deinterleaving memory in 1 receive FCI block. In all examples above the modem used 20 Kbyte of shared interleaver memory for various combinations of receiver and transmitter applications.

While this invention describes ADSL systems it can be equally applied to any DSL system that has multiple FCI blocks including VDSL, VDSL2, ADSL2, SHDSL etc.